

## WHAT IS CLAIMED IS:

1. A semiconductor light-emitting device constituted by mounting a semiconductor light-emitting element on a base substance, wherein

5 the semiconductor light-emitting element has outgoing light having an emission wavelength of 390 to 420 nm; and

there is included a fluorescent substance that is excited by outgoing light from the semiconductor light-emitting element and emits red light having an emission wavelength with its main emission peak in a wavelength range of 600 to 670 nm.

2. The semiconductor light-emitting device according to Claim 1, wherein the fluorescent substance is composed of any one or more selected from a fluorescent substance group consisting of:

$M_2O_2S:Eu$  (M is any one or more elements selected from La, Gd and Y);

$0.5 MgF_2 \cdot 3.5MgO \cdot GeO_2 : Mn$ ;

$Y_2O_3 : Eu$ ;

$Y(P, V) O_4 : Eu$ ; and

$YVO_4 : Eu$ .

3. A semiconductor light-emitting device constituted by mounting a semiconductor light-emitting element on a base substance, wherein

the semiconductor light-emitting element has outgoing light having an emission wavelength in a range of 390 to 420 nm; and

there is included a fluorescent substance that is excited by outgoing light from the semiconductor light-emitting element and emits green light having an emission wavelength with its main emission peak in a wavelength range of 500 to 540 nm.

4. The semiconductor light-emitting device according to Claim 3, wherein the fluorescent substance is composed of any one or more selected from a fluorescent substance group consisting of:

$\text{RMg}_2\text{Al}_{16}\text{O}_{27}$ : Eu, Mn (R is any one or both elements selected from Sr and Ba);

$\text{RMgAl}_{10}\text{O}_{17}$ : Eu, Mn (R is any one or both elements selected from Sr and Ba);

$\text{ZnS}$ : Cu;

$\text{SrAl}_2\text{O}_4$ : Eu;

$\text{SrAl}_2\text{O}_4$ : Eu, Dy;

$\text{ZnO}$ : Zn;

$\text{Zn}_2\text{Ge}_2\text{O}_4$ : Mn;

$\text{Zn}_2\text{SiO}_4$ : Mn; and

$\text{Q}_3\text{MgSi}_2\text{O}_8$ : Eu, Mn (Q is any one or more elements selected from Sr, Ba and Ca).

5. A semiconductor light-emitting device constituted

by mounting a semiconductor light-emitting element on a base substance, wherein

the semiconductor light-emitting element has outgoing light having an emission wavelength in a range of 390 to 420 nm; and

there is included a fluorescent substance that is excited by outgoing light from the semiconductor light-emitting element and emits blue light having an emission wavelength with its main emission peak in a wavelength range of 410 to 480 nm.

6. The semiconductor light-emitting device according to Claim 5, wherein the fluorescent substance is composed of any one or more selected from a fluorescent substance group consisting of:

$A_{10}(PO_4)_6Cl_2:Eu$  (A is any one or more elements selected from Sr, Ca, Ba, Mg and Ce);

$XMg_2Al_{16}O_{27}:Eu$  (X is any one or both elements selected from Sr and Ba);

$XMgAl_{10}O_{17}:Eu$  (X is any one or both elements selected from Sr and Ba);

$ZnS:Ag$ ;

$Sr_{10}(PO_4)_6Cl_2:Eu$ ;

$Ca_{10}(PO_4)_6F_2:Sb$ ;

$Z_3MgSi_2O_8:Eu$  (Z is any one or more elements selected from Sr, Ca and Ba);

$\text{SrMgSi}_2\text{O}_8$ : Eu;

$\text{Sr}_2\text{P}_2\text{O}_7$ : Eu; and

$\text{CaAl}_2\text{O}_4$ : Eu, Nd.

7. A semiconductor light-emitting device constituted  
by mounting a semiconductor light-emitting element on a  
base substance, wherein

the semiconductor light-emitting element has  
outgoing light having an emission wavelength in a range of  
390 to 420 nm; and

there is included a fluorescent substance that is  
excited by outgoing light from the semiconductor light-  
emitting element and emits blue green light having an  
emission wavelength with its main emission peak in a  
wavelength range of 480 to 500 nm.

8. The semiconductor light-emitting device according  
to Claim 7, wherein the fluorescent substance is composed  
of any one or more selected from a fluorescent substance  
group consisting of:

$\text{Sr}_4\text{Al}_{14}\text{O}_{25}$ : Eu;

$\text{Sr}_4\text{Al}_{14}\text{O}_{25}$ : Eu, Dy;

$\text{L}_{10}(\text{PO}_4)_6\text{Cl}_2$ : Eu (L is any one or more elements  
selected from Ba, Ca and Mg); and

$\text{Sr}_2\text{Si}_3\text{O}_8 \cdot 2\text{SrCl}_2$ : Eu.

9. A semiconductor light-emitting device constituted  
by mounting a semiconductor light-emitting element on a

base substance, wherein

the semiconductor light-emitting element has outgoing light having an emission wavelength in a range of 390 to 420 nm; and

5 there is included a fluorescent substance that is excited by outgoing light from the semiconductor light-emitting element and emits orange light having an emission wavelength with its main emission peak in a wavelength range of 570 to 600 nm.

10 10. The semiconductor light-emitting device according to Claim 9, wherein the fluorescent substance is composed of any one or more selected from a fluorescent substance group consisting of:

ZnS: Mn; and

15 ZnS: Cu, Mn, Co.

11. The semiconductor light-emitting device according to Claim 1, wherein

a sealing resin for sealing at least a part of the base substance and the semiconductor light-emitting  
20 element is included; and

the sealing resin contains the fluorescent substance.

12. The semiconductor light-emitting device according to Claim 3, wherein

25 a sealing resin for sealing at least a part of

the base substance and the semiconductor light-emitting element is included; and

the sealing resin contains the fluorescent substance.

5 13. The semiconductor light-emitting device according to Claim 5, wherein

a sealing resin for sealing at least a part of the base substance and the semiconductor light-emitting element is included; and

10 the sealing resin contains the fluorescent substance.

14. The semiconductor light-emitting device according to Claim 7, wherein

15 a sealing resin for sealing at least a part of the base substance and the semiconductor light-emitting element is included; and

the sealing resin contains the fluorescent substance.

20 15. The semiconductor light-emitting device according to Claim 9, wherein

a sealing resin for sealing at least a part of the base substance and the semiconductor light-emitting element is included; and

25 the sealing resin contains the fluorescent substance.

the base substance is a lead frame having a cup-shaped mount section;

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the semiconductor light-emitting element is

disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

the fluorescent substance is filled in the cup-shaped mount section; and

at least a part of the two lead frames, the semiconductor light-emitting element and the fluorescent substance are sealed with a sealing resin.

19. The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a lead frame having a cup-shaped mount section;

the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

the fluorescent substance is filled in the cup-shaped mount section; and

at least a part of the two lead frames, the semiconductor light-emitting element and the fluorescent substance are sealed with a sealing resin.

20. The semiconductor light-emitting device according to Claim 5, wherein

the base substance is a lead frame having a cup-shaped mount section;



the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

5 the fluorescent substance is filled in the cup-shaped mount section; and

at least a part of the two lead frames, the semiconductor light-emitting element and the fluorescent substance are sealed with a sealing resin.

10 21. The semiconductor light-emitting device according to Claim 7, wherein

the base substance is a lead frame having a cup-shaped mount section;

15 the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

the fluorescent substance is filled in the cup-shaped mount section; and

20 at least a part of the two lead frames, the semiconductor light-emitting element and the fluorescent substance are sealed with a sealing resin.

22. The semiconductor light-emitting device according to Claim 9, wherein

25 the base substance is a lead frame having a cup-

shaped mount section;

the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

the fluorescent substance is filled in the cup-shaped mount section; and

at least a part of the two lead frames, the semiconductor light-emitting element and the fluorescent substance are sealed with a sealing resin.

23. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a lead frame having a cup-shaped mount section;

the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

a coating member is filled in the cup-shaped mount section and the fluorescent substance is disposed on the coating member; and

at least a part of the two lead frames, the semiconductor light-emitting element, the coating member and the fluorescent substance are sealed with a sealing resin.

24. The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a lead frame having a cup-shaped mount section;

5 the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

10 a coating member is filled in the cup-shaped mount section and the fluorescent substance is disposed on the coating member; and

15 at least a part of the two lead frames, the semiconductor light-emitting element, the coating member and the fluorescent substance are sealed with a sealing resin.

25. The semiconductor light-emitting device according to Claim 5, wherein

the base substance is a lead frame having a cup-shaped mount section;

20 the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

25 a coating member is filled in the cup-shaped mount section and the fluorescent substance is disposed on

the coating member; and

at least a part of the two lead frames, the semiconductor light-emitting element, the coating member and the fluorescent substance are sealed with a sealing resin.

26. The semiconductor light-emitting device according to Claim 7, wherein

the base substance is a lead frame having a cup-shaped mount section;

the semiconductor light-emitting element is disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

a coating member is filled in the cup-shaped mount section and the fluorescent substance is disposed on the coating member; and

at least a part of the two lead frames, the semiconductor light-emitting element, the coating member and the fluorescent substance are sealed with a sealing resin.

27. The semiconductor light-emitting device according to Claim 9, wherein

the base substance is a lead frame having a cup-shaped mount section;

the semiconductor light-emitting element is

disposed at the bottom of the cup-shaped mount section of the lead frame and electrically connected to another lead frame by wire bonding;

a coating member is filled in the cup-shaped mount section and the fluorescent substance is disposed on the coating member; and

at least a part of the two lead frames, the semiconductor light-emitting element, the coating member and the fluorescent substance are sealed with a sealing resin.

28. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected the metallic wiring on the substrate;

a sealing resin for sealing the semiconductor light-emitting element is included; and

the sealing resin contains the fluorescent substance.

29. The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected the metallic wiring on the substrate;

a sealing resin for sealing the semiconductor light-emitting element is included; and

the sealing resin contains the fluorescent substance.

30. The semiconductor light-emitting device according to Claim 5, wherein

10 the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected the metallic wiring on the substrate;

15 a sealing resin for sealing the semiconductor light-emitting element is included; and

the sealing resin contains the fluorescent substance.

31. The semiconductor light-emitting device according to Claim 7, wherein

20 the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected the metallic wiring on the substrate;

25

a sealing resin for sealing the semiconductor light-emitting element is included; and

the sealing resin contains the fluorescent substance.

5 32. The semiconductor light-emitting device according to Claim 9, wherein

the base substance is a substrate provided with metallic wiring;

10 the semiconductor light-emitting element is electrically connected the metallic wiring on the substrate;

a sealing resin for sealing the semiconductor light-emitting element is included; and

15 the sealing resin contains the fluorescent substance.

33. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a substrate provided with metallic wiring;

20 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion; and

the fluorescent substance is filled in the recessed portion.

25 34. The semiconductor light-emitting device according

to Claim 3, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion; and

the fluorescent substance is filled in the recessed portion.

35. The semiconductor light-emitting device according to Claim 5, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion; and

the fluorescent substance is filled in the recessed portion.

36. The semiconductor light-emitting device according to Claim 7, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion; and

the fluorescent substance is filled in the



recessed portion.

37. The semiconductor light-emitting device according to Claim 9, wherein

the base substance is a substrate provided with  
5 metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion; and

the fluorescent substance is filled in the  
10 recessed portion.

38. The semiconductor light-emitting device according to Claim 33, wherein

the recessed portion is formed by a frame disposed on the substrate.

39. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is  
20 electrically connected to the metallic wiring on the substrate and disposed in a recessed portion;

a sealing resin is filled in the recessed portion; and

the fluorescent substance is disposed on the  
25 sealing resin.

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40. The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a substrate provided with metallic wiring;

5 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion;

a sealing resin is filled in the recessed portion; and

10 the fluorescent substance is disposed on the sealing resin.

41. The semiconductor light-emitting device according to Claim 5, wherein

15 the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion;

20 a sealing resin is filled in the recessed portion; and

the fluorescent substance is disposed on the sealing resin.

42. The semiconductor light-emitting device according to Claim 7, wherein

25 the base substance is a substrate provided with

metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion;

5 a sealing resin is filled in the recessed portion; and

the fluorescent substance is disposed on the sealing resin.

43. The semiconductor light-emitting device according to Claim 9, wherein

the base substance is a substrate provided with metallic wiring;

15 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate and disposed in a recessed portion;

a sealing resin is filled in the recessed portion; and

the fluorescent substance is disposed on the sealing resin.

20 44. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a substrate provided with metallic wiring;

25 the semiconductor light-emitting element is electrically connected to the metallic wiring on the

substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

5 a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

the fluorescent substance is contained in the sealing resin.

10 45. The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a substrate provided with metallic wiring;

15 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

20 a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

the fluorescent substance is contained in the sealing resin.

25 46. The semiconductor light-emitting device according

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to Claim 5, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

the fluorescent substance is contained in the sealing resin.

47. The semiconductor light-emitting device according to Claim 7, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

a sealing resin for sealing the semiconductor

light-emitting element and transmitting reflected light from the reflector is included; and

the fluorescent substance is contained in the sealing resin.

5 48. The semiconductor light-emitting device according to Claim 9, wherein

the base substance is a substrate provided with metallic wiring;

10 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

15 a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

the fluorescent substance is contained in the sealing resin.

20 49. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a substrate provided with metallic wiring;

25 the semiconductor light-emitting element is electrically connected to the metallic wiring on the

substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

5 a shielding body for shielding light directly emitted from the semiconductor light-emitting element to the outside of the semiconductor light-emitting device is included;

10 a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

50. 15 The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a substrate provided with metallic wiring;

20 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

25 a shielding body for shielding light directly emitted from the semiconductor light-emitting element to

the outside of the semiconductor light-emitting device is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

51. The semiconductor light-emitting device according to Claim 5, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

a shielding body for shielding light directly emitted from the semiconductor light-emitting element to the outside of the semiconductor light-emitting device is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on



a surface of the reflector that reflects light.

52. The semiconductor light-emitting device according to Claim 7, wherein

the base substance is a substrate provided with  
5 metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

10 a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

15 a shielding body for shielding light directly emitted from the semiconductor light-emitting element to the outside of the semiconductor light-emitting device is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

20 a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

53. The semiconductor light-emitting device according to Claim 9, wherein

the base substance is a substrate provided with metallic wiring;

25 the semiconductor light-emitting element is

electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

a shielding body for shielding light directly emitted from the semiconductor light-emitting element to the outside of the semiconductor light-emitting device is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

54. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

at least a light-emitting section of the semiconductor light-emitting element is disposed in a recessed portion in the substrate;

a reflector for reflecting at least a part of

outgoing light from the semiconductor light-emitting element is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

55. The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

at least a light-emitting section of the semiconductor light-emitting element is disposed in a recessed portion in the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

56. The semiconductor light-emitting device according to Claim 5, wherein

the base substance is a substrate provided with metallic wiring;

5 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

10 at least a light-emitting section of the semiconductor light-emitting element is disposed in a recessed portion in the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

15 a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

20 57. The semiconductor light-emitting device according to Claim 7, wherein

the base substance is a substrate provided with metallic wiring;

25 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

at least a light-emitting section of the semiconductor light-emitting element is disposed in a recessed portion in the substrate;

5 a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

10 a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

58. The semiconductor light-emitting device according to Claim 9, wherein

15 the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

20 at least a light-emitting section of the semiconductor light-emitting element is disposed in a recessed portion in the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

25 a sealing resin for sealing the semiconductor

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light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the reflector that reflects light.

5 59. The semiconductor light-emitting device according to Claim 1, wherein

the base substance is a substrate provided with metallic wiring;

10 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

15 a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the sealing resin that reflects light.

20 60. The semiconductor light-emitting device according to Claim 3, wherein

the base substance is a substrate provided with metallic wiring;

25 the semiconductor light-emitting element is electrically connected to the metallic wiring on the



to Claim 7, wherein

the base substance is a substrate provided with metallic wiring;

the semiconductor light-emitting element is  
5 electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

10 a sealing resin for sealing the semiconductor light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the sealing resin that reflects light.

15 63. The semiconductor light-emitting device according to Claim 9, wherein

the base substance is a substrate provided with metallic wiring;

20 the semiconductor light-emitting element is electrically connected to the metallic wiring on the substrate;

a reflector for reflecting at least a part of outgoing light from the semiconductor light-emitting element is included;

25 a sealing resin for sealing the semiconductor



light-emitting element and transmitting reflected light from the reflector is included; and

a layer of the fluorescent substance is formed on a surface of the sealing resin that reflects light.

5 64. A semiconductor light-emitting device constituted by mounting a semiconductor light-emitting element on a base substance, wherein

10 the semiconductor light-emitting element has outgoing light having emission wavelengths of 390 to 420 nm;

a first fluorescent substance, a second fluorescent substance and a third fluorescent substance are included;

15 the first fluorescent substance has red outgoing light having emission wavelengths with its main emission peak in a wavelength range of 600 to 670 nm;

the second fluorescent substance has green outgoing light having emission wavelengths with its main emission peak in a wavelength range of 500 to 540 nm;

20 the third fluorescent substance has blue outgoing light having emission wavelengths with its main emission peak in a wavelength range of 410 to 480 nm; and

the sum of colors of light emitted from the first, second and third fluorescent substances is a white color.

25 65. The semiconductor light-emitting device according

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to Claim 64, wherein

the first fluorescent substance is composed of any one or more selected from a fluorescent substance group consisting of:

5  $M_2O_2S$ : Eu (M is any one or more elements selected from La, Gd and Y);

$0.5MgF_2 \cdot 3.5MgO \cdot GeO_2$ : Mn;

$Y_2O_3$ : Eu,

$Y(P, V)O_4$ : Eu; and

10  $YVO_4$ : Eu;

the second fluorescent substance is composed of any one or more selected from a fluorescent substance group consisting of:

15  $RMg_2Al_{16}O_{27}$ : Eu, Mn (R is any one or both elements selected from Sr and Ba);

$RMgAl_{10}O_{17}$ : Eu, Mn (R is any one or both elements selected from Sr and Ba);

$ZnS$ : Cu;

$SrAl_2O_4$ : Eu;

20  $SrAl_2O_4$ : Eu, Dy;

$ZnO$ : Zn;

$Zn_2Ge_2O_4$ : Mn;

$Zn_2SiO_4$ : Mn; and

25  $Q_3MgSi_2O_8$ : Eu, Mn (Q is any one or more elements selected from Sr, Ba and Ca); and

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the third fluorescent substance is composed of any one or more selected from a fluorescent substance group consisting of:

$A_{10}(PO_4)_6Cl_2: Eu$  (A is any one or more elements selected from Sr, Ca, Ba, Mg and Ce);

$XMg_2Al_{16}O_{27}: E$  (X is any one or both elements selected from Sr and Ba);

$XMgAl_{10}O_{17}: Eu$  (X is any one or both elements selected from Sr and Ba);

$ZnS: Ag$ ;

$Sr_{10}(PO_4)_6Cl_2: Eu$ ;

$Ca_{10}(PO_4)_6F_2: Sb$ ;

$Z_3MgSi_2O_8: Eu$  (Z is any one or more elements selected from Sr, Ca and Ba);

$SrMgSi_2O_8: Eu$ ;

$Sr_2P_2O_7: Eu$ ;

$CaAl_2O_4: Eu, Nd$ .

66. The semiconductor light-emitting device according to Claim 64, wherein, assuming the total amount as 100 weight %,

the first fluorescent substance is between 50 weight % and 70 weight % inclusive;

the second fluorescent substance is between 7 weight % and 20 weight % inclusive; and

the third fluorescent substance is between 20

weight % and 30 weight % inclusive.

67. The semiconductor light-emitting device according to Claim 66, wherein

the sealing resin contains the first, second and third fluorescent substances; and

the proportion of the total weight of the first, second and third fluorescent substances to the weight of the sealing resin is between 0.5 and 1 inclusive.

68. A light-emitting display device comprising;

a light source using the semiconductor light-emitting device according to Claim 64;

a light guiding plate for guiding light from the light source; and

red, green and blue color filters for transmitting light from the light guiding plate and dividing the light; the light-emitting display device, wherein

outgoing light from the semiconductor light-emitting device has a wavelength distribution that matches spectral characteristics of the color filters.

69. The light-emitting display device according to Claim 68, wherein at least one of the following is adjusted so that the wavelength distribution of the outgoing light from the semiconductor light-emitting device matches spectral characteristics of the color filters:

the emission wavelength of the semiconductor light-emitting element;

the emission wavelength of the first fluorescent substance;

5 the emission wavelength of the second fluorescent substance;

the emission wavelength of the third fluorescent substance;

10 the mixture proportions of the first, second and third fluorescent substances; and

the proportion of the total weight of the first, second and third fluorescent substances to the weight of the sealing resin.

70. The light-emitting display device according to  
15 Claim 68, wherein

the light-emitting display device is a liquid crystal display device.

71. The light-emitting display device according to Claim 69, wherein

20 the light-emitting display device is a liquid crystal display device.